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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,773	10/24/2003	Brian Neal Caldwell	BUR920030109US1	2772

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EXAMINER
TALBOT, MICHAEL

ART UNIT PAPER NUMBER
3722

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,773	CALDWELL ET AL.	
	Examiner	Art Unit	
	Michael W. Talbot	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2005 (Amendment).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-21,24-35 and 37-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-21,24-35 and 37-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method step "adjusts the height of the height adjustment mechanisms (53)" recited in claims 28,34 and 35 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

For your information, the revised drawings showed the step labeled as 54. Alternatively, the entire specification could be updated to change the character reference from 53 to 54 in lieu of submitting a revised drawing.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The objection of the specification is withdrawn due to Applicant's amendment filed on 25 July 2005.

Claim Rejections - 35 USC § 112

3. The rejection of the claims under the second paragraph of 35 U.S.C. 112 is withdrawn due to Applicant's amendment filed on 25 July 2005.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,8,9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by van Os et al. '556 in view of Guyot '423, further in view of Di Milia et al. '192. Van Os et al. '556 shows in Figures 4,8 and 9 an electrostatic chuck (10) having a base plate (18), a height adjustment mechanism (86) connected to base plate and chuck pins (88) connected to the height adjustment mechanism. Van Os et al. '556 further discloses in col. 7, lines 14-27 that the flatness (i.e. a substantially horizontal orientation) is controlled through synchronized movements of the height adjustment mechanism. Van Os et al. '556 lacks the height adjustment mechanism individually controlling the height of the pins as well as the pins being electrostatic pins.

Guyot '423 shows in Figure 2 a height adjustment mechanism (130) being capable of individually controlling each pin (col. 3, lines 42-55).

Di Milia et al. '192 shows in Figure 3 an electrostatic pin chuck (12) having pins (30) that are electrostatic due to the silicon dioxide film coating of the pins. Furthermore the Abstract,

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lines 13-17, provides additional support that the pins of the electrostatic chuck function as electrostatic pins.

In view of this teaching of Guyot '423, it is considered to have been obvious to replace the pin assembly of van Os et al. '556 with another well-known, individually controlled pin assembly by Guyot '423 to eliminate the need for a separate platform for raising and lowering the pins thus making the design more compact and versatile to accommodate larger sized objects.

In view of this teaching of Di Milia et al. '192, it is considered to have been obvious to replace the pin assembly of van Os et al. '556 with an electrostatic pin assembly by Di Milia et al. '192 to increase the versatility of the electrostatic pin chuck since it can now be used in vacuum environments (col. 6, lines 27-36) and to provide an improved holding force between the wafer the electrostatic pin chuck.

With regards to claim 1, it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.

Claims 5,6,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192, further in view of Shiota et al. '837. Van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 lack the height adjustment mechanism comprising computer controlled devices that automatically maintains a flatness of an object held by the electrostatic chuck pins. Shiota et al. '837 shows in Figures 1 and 2 a height adjustment mechanism (2) comprising computer controlled devices (40,41,62,63,64) that automatically maintain a flatness of an object (Figures 8A,8B and col. 7, lines 38-65) held by the electrostatic chuck pins. In view of this teaching Shiota et al. '837, it is considered to have been obvious to modify the electrostatic chuck of van Os et al. '556 in view

of Guyot '423 in view of Di Milia et al. '192 to include computer controlled components disclosed by Shiota et al. '837 to provide enhanced control of the height adjustment mechanism and continuous monitoring capabilities of the objects outer surface characteristics.

Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192, further in view of Or et al. 2004/0045509. Van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 lack the height adjustment mechanism being one of screw type mechanisms, piezoelectric actuators, hydraulic actuators, hydraulic pistons, thermal actuators and magnetic actuators. Or et al. 2004/0045509 shows on page 1, paragraph [0014] that the height adjustment mechanism (116) may be a pneumatic cylinder, hydraulic cylinder, lead screw, solenoid, stepper motor or other motion devices. In view of this teaching Or et al. 2004/0045509, it is considered to have been obvious to replace the pneumatic cylinder height adjustment mechanism of van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 with another well-known motion device disclosed by Or et al. 2004/0045509, such as a hydraulic cylinder or lead screw to achieve the desired movement.

Claims 14-16,18,19,21,25,26,28-31,33-35,37,39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837, further in view of Lund '044. Van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837, further in view of Lund '044 lack the computer being linked to a height adjustment mechanism and a measurement tool for adjusting the flatness of the object through the height adjustment mechanism based upon feedback data from the measurement tool to the computer. Lund '044 shows in Figures 10-13 a computer (60) for receiving the real-time data from a measurement tool (101), such as an interferometer, to monitor any number of desired parameters, such as flatness. In view of this

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teaching Lund '044, it is considered to have been obvious to replace the computer controlled height adjustment mechanism for the electrostatic chuck of van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837, further in view of Lund '044 to include another well-known computer controlled apparatus by Lund '044 for measuring a number of key parameter for improved quality control.

With regards to claims 14 and 21, it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.

Claims 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837 in view of Lund '044, further in view of Or et al. 2004/0045509. Van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837 in view of Lund '044 lack the height adjustment mechanism being one of screw type mechanisms, piezoelectric actuators, hydraulic actuators, hydraulic pistons, thermal actuators and magnetic actuators. Or et al. 2004/0045509 shows on page 1, paragraph [0014] that the height adjustment mechanism (116) may be a pneumatic cylinder, hydraulic cylinder, lead screw, solenoid, stepper motor or other motion devices. In view of this teaching Or et al. 2004/0045509, it is considered to have been obvious to replace the pneumatic cylinder height adjustment mechanism of van Os et al. '556 in view of Guyot '423 in view of Di Milia et al. '192 in view of Shiota et al. '837 in view of Lund '044 with another well-known motion device disclosed by Or et al. 2004/0045509, such as a hydraulic cylinder or lead screw to achieve the desired movement.

Claims 4,17 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by van Os et al. '556 in view of Di Milia et al. '192, further in view of Abdo et al. '007. Van Os et al. '556 shows in Figures 4,8 and 9 an electrostatic chuck (10) having a base plate (18), a height

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adjustment mechanism (86) connected to base plate and chuck pins (88) connected to the height adjustment mechanism. Van Os et al. '556 further discloses in col. 7, lines 14-27 that the flatness (i.e. a substantially horizontal orientation) is controlled through synchronized movements of the height adjustment mechanism. Van Os et al. '556 lacks the pins being electrostatic pins and the height adjustment capable of compensating for foreign matter particles.

Di Milia et al. '192 shows in Figure 3 an electrostatic pin chuck (12) having pins (30) that are electrostatic due to the silicon dioxide film coating of the pins. Furthermore the Abstract, lines 13-17, provides additional support that the pins of the electrostatic chuck function as electrostatic pins.

Abdo et al. '007 shows in Figure 11-14 an electrostatic pin chuck having pins (1304) that can be adjusted (col. 9, line 50 through col. 10, line 51) to compensate for foreign particles (1206).

In view of this teaching of Di Milia et al. '192, it is considered to have been obvious to replace the pin assembly of van Os et al. '556 with an electrostatic pin assembly by Di Milia et al. '192 to increase the versatility of the electrostatic pin chuck since it can now be used in vacuum environments (col. 6, lines 27-36) and to provide an improved holding force between the wafer the electrostatic pin chuck.

In view of this teaching of Abdo et al. '007, it is considered to have been obvious to replace the height adjustment mechanism of van Os et al. '556 with an height adjustment mechanism of Abdo et al. '007 to eliminate the possibility of contaminants being wedged between the electrostatic pins thus eliminate warping of the wafer and ensuring a proper electrostatic holding force between the pins/chuck and the wafer.

With regards to claims 4,17 and 38, the phrase "compensate for foreign matter particles between said electrostatic chuck pins and a device being held by said electrostatic chuck pins" is merely functional/intended use not defining any specific structure and only requires prior art references to be capable of said intended use. See MPEP 2114. In this case, height adjustment device (18,86,88) of by van Os et al. '556 is clearly capable of being adjusted due to foreign matter by controlling the flatness (i.e. a substantially horizontal orientation) through synchronized movements of the height adjustment mechanism (col. 7, lines 14-27).

Allowable Subject Matter

5. The indicated allowability of claims 4,17 and 38 are withdrawn in view of the newly discovered reference(s) to Di Milia et al. '192 and Abdo et al. '007. Rejections based on the newly cited reference(s) are above.

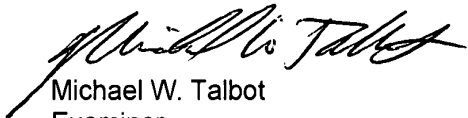
Response to Arguments

6. Applicant's arguments with respect to claims 1,4-21,24-35 and 37-40 have been considered but are moot in view of the new ground(s) of rejection.


7. Any inquiry concerning the content of this communication from the examiner should be directed to Michael W. Talbot, whose telephone number is 571-272-4481. The examiner's office hours are typically 8:30am until 5:00pm, Monday through Friday. The examiner's supervisor, Mr. Boyer D. Ashley, may be reached at 571-272-4502.

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In order to reduce pendency and avoid potential delays, group 3720 is encouraging FAXing of responses to Office Actions directly into the Group at FAX number 571-273-8300. This practice may be used for filling papers not requiring a fee. It may also be used for filing papers, which require a fee, by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Michael W. Talbot of Art Unit 3722 at the top of your cover sheet.



Michael W. Talbot
Examiner
Art Unit 3722
26 September 2005



BOYER D. ASHLEY
PRIMARY EXAMINER